

FEDERAL AVIATION AGENCY
FLIGHT STANDARDS SERVICE
Washington 25, D. C.

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CIVIL AIR REGULATIONS DRAFT RELEASE NO. 62-18

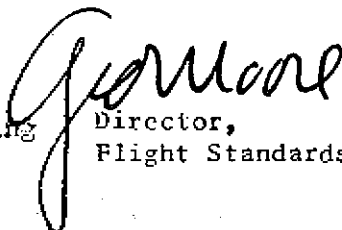
SUBJECT: Proposed Special Civil Air Regulation, "Operation of Certain Transport Category Airplanes in Cargo Service at Increased Zero Fuel and Landing Weights"

The Flight Standards Service of the Federal Aviation Agency has under consideration a new Special Civil Air Regulation to permit certain transport category airplanes to be operated in cargo service at increased zero fuel and landing weights. The reasons therefor are set forth in the explanatory statement of the attached proposal which is being published in the Federal Register as a notice of proposed rule making. The proposed regulation would supersede Special Civil Air Regulation No. SR-411A which terminates on June 30, 1962.

The Flight Standards Service desires that all persons who will be affected by the requirements of this proposal be fully informed as to its effect upon them and is therefore circulating copies in order to afford interested persons ample opportunity to submit comments as they may desire.

Because of the large number of comments which we anticipate receiving in response to this draft release, we will be unable to acknowledge receipt of each reply. However, you may be assured that all comments will be given careful consideration.

It should be noted that comments should be submitted, preferably in duplicate, to the Docket Section of the Federal Aviation Agency, and in order to insure consideration should be received on or before June 8, 1962.


Acting Director,
Flight Standards Service

**FEDERAL AVIATION AGENCY
FLIGHT STANDARDS SERVICE**

[14 CFR Parts 4b, 40, 41, 42, 44]

[Regulatory Docket No. 1167; Draft Release No. 62-18]

NOTICE OF PROPOSED RULE MAKING

Special Civil Air Regulation

**Operation of Certain Transport Category Airplanes in Cargo Service
at Increased Zero Fuel and Landing Weights**

Pursuant to the authority delegated to me by the Administrator (14 CFR 405.27), notice is hereby given that there is under consideration a proposed Special Civil Air Regulation authorizing the operation of specified transport category airplanes in cargo service at increased zero fuel and landing weights.

Special Civil Air Regulation No. SR-411A which authorized the trial operation of transport category airplanes in cargo service at increased zero fuel and landing weights will terminate on June 30, 1962, unless sooner superseded or rescinded.

Interested persons may participate in the making of the proposed rules by submitting such written data, views, or arguments as they may desire. Communications should be submitted in duplicate to the Docket Section of the Federal Aviation Agency, Room C-226, 1711 New York Avenue, N.W., Washington 25, D.C. All communications received on or before June 8, 1962, will be considered by the Administrator before taking action upon the proposed rules. The proposals contained in this notice may be changed in the light of the comments received. All comments submitted will be available in the Docket Section for examination by interested persons at any time.

Trial operations of cargo airplanes (Douglas DC-6A) at increased weights were first authorized in waivers issued by the Civil Aeronautics Board to individual air carriers. The first such waiver was issued on July 21, 1954. The weights involved were the zero fuel weight (i.e., the maximum weight of the airplane with no disposable fuel and oil, which has the effect of limiting the weight of the fuselage contents) and the structural landing weight. The weight increases were limited to not more than 5 percent of the zero fuel weight approved for passenger operations, and their use was made contingent upon certain findings by the Administrator of Civil Aeronautics and upon certain conditions of operation, inspections, and reporting. Authorization of the trial operations was predicated on the premise that such operations could eventually lead to the establishment of a sound basis for differentiating between standards for passenger and cargo air carrier operations.

Based upon the trial operations under the waivers, the Board determined that a more extensive background of operating experience was necessary. This led to the promulgation of Special Civil Air Regulation No. SR-411 (20 F.R. 4765) which permitted any number of any type of transport category airplane to be operated by any air carrier at increased weights in cargo service.

From the data submitted by the operators in accordance with SR-411, the Board concluded that the scope of operations under SR-411 had been such that substantiation of the conditions for these operations for inclusion in the regulations on a permanent basis would entail a long-range program. The Board, therefore, extended the trial operations by adopting SR-411A on June 28, 1957, (22 F.R. 4684) with a termination date of June 30, 1962.

SR-411A differs from SR-411 in that SR-411A is limited to those airplanes certificated under the transport category airworthiness requirements effective before March 13, 1956. This limitation was made because the Board believed it advisable to gain some experience with the airplanes certificated under the provisions of Part 4b effective on and after March 13, 1956, at the normal transport category weights before permitting such airplanes to operate at increased weights. In arriving at this conclusion, the Board took into consideration the new concept of structural design requirements as well as other related changes in these requirements which were introduced in Part 4b on March 13, 1956.

As the preambles to both SR-411 and SR-411A indicated, the purpose in permitting the trial operation of transport category airplanes in cargo service at the arbitrary increased zero fuel and landing weights was to determine through operating experience whether the conditions governing the trial operations would provide a sound basis for establishing future standards for airplanes in cargo operations at increased weights. During the approximately six years that these trial operations have been conducted, a substantial amount of data has been amassed concerning the aircraft approved for operation under these Special Civil Air Regulations.

The data submitted and the operating experience gained under SR-411 and SR-411A indicate that the airplanes currently approved for and operating at the increased weights can be operated at such increased weights under certain conditions without adverse effect upon safety of the aircraft. The inspection reports submitted by the operators under SR-411 and SR-411A have not indicated any serious structural difficulties resulting from operation at the increased weights. The service history of these airplanes with respect to fatigue cracks and other damage is similar to that for airplanes of the same type operated in passenger service. Therefore, since the cargo operators have expressed a need to continue operation of these airplanes at the increased weights in their cargo operations, the Agency proposes to extend the provisions of SR-411A indefinitely to the three types of airplanes that have been qualified and operated at such weights: i.e., the DC-6A, DC-7 series, and Lockheed 1049 series. The Agency does not believe that it would be in the interest of safety at this time to extend this indefinite authority to other types of airplanes certificated under the transport category airworthiness requirements effective before March 13, 1956, for which operating experience at increased weights has not been obtained.

Several operators and manufacturers have requested that the provisions of SR-411A be made applicable to airplanes certificated under the provisions of Part 4b effective on and after March 13, 1956. These airplanes also lack the necessary operating experience and statistics to justify the extension of this authority to such types of airplanes. In this respect, it is noted that the operating statistics for several types of transport category airplanes certificated under the provisions of Part 4b effective on and after March 13, 1956, indicate that higher landing impact velocities are experienced on those types than on the types operated under SR-411A. In addition, several of the types certificated under the requirements effective on and after March 13, 1956, are certificated with landing gear parts made of high stress materials which are more critical with respect to fatigue damage.

It should also be noted, with respect to airplanes certificated under the provisions of Part 4b effective on and after March 13, 1956, that these provisions relaxed the previous structural requirements concerning the zero fuel flight loads conditions and the landing gear energy absorption requirement. For example, amended § 4b.210(c) permits the basic flight load factors to be met with "structural reserve fuel" on board, and permits reduced load factors for the zero fuel condition. Amended § 4b.332(b)(2) further permits the limit landing gear energy absorption to be based on wing lift equal to 100 percent instead of 67 percent of the airplane weight. As a result, it is possible under these later requirements of Part 4b to realize a weight benefit not available to airplanes type certificated under the earlier requirements. This weight benefit which depends upon the design of the particular airplane with respect to fuel location, landing gear design, etc., is considered more rational than

the arbitrary weight increase permitted by SR-411A for the older airplanes. Although the later requirements also included rational gust criteria which may result in more severe gust loads for some airplane designs, and thus diminish the possible weight benefit for these airplanes, the rational gust criteria were considered necessary to take into account the increased operating speeds and altitudes of such airplanes.

In view of the foregoing, it is proposed to promulgate a new special regulation which would permit only those airplane types which were approved for trial operations under SR-411A to be used in the carriage of cargo with the arbitrary increased weights.

In addition, this proposed special regulation would relax the provisions of SR-411A to the extent that the proposal would also apply to foreign air carriers operating the specified airplanes. The provisions of SR-411A were made applicable only to United States air carriers because the conditions for the trial operations required close cooperation between the manufacturer, operator, and the Civil Aeronautics Administration during the initial technical evaluation and in the inspection and reporting procedures. However, since this proposal would permit the continued use of increased weights only for those type airplanes now operating under SR-411A, for which the necessary data and procedures are already available, the increased weights can now be made applicable to any foreign air carrier using airplanes of the specified types in the carriage of cargo only.

As required under SR-411A, this proposal would require that airplanes used by air carriers at the increased weights be operated in accordance with the passenger-carrying transport category operating limitations of Part 40, 41, or 42, as the case may be. In addition, foreign air carriers would be permitted to operate airplanes under the authority of this regulation if the country of registry of the airplanes requires such airplanes to be operated in accordance with the performance operating limitations applicable to air carriers or the equivalent thereof. The requirement that air carriers must operate their airplanes under the provisions of the regulation in accordance with the passenger carrying performance operating limitations prescribed in Part 40, 41, or 42 is considered necessary in the interest of safety. Therefore, in order to assure an equivalent level of safety for operations by foreign air carriers, it is considered appropriate to permit such carriers to operate airplanes under the authority of this regulation only on the condition that the country of registry of the airplanes requires that such airplanes be operated in accordance with similar performance operating limitations.

The proposal would continue the special inspection procedures initiated in accordance with SR-411A. However, in view of the volume of data now available for the eligible airplane types, the proposal would no longer require special reports and records with respect to operations at increased weights.

The proposal would also continue the provisions of SR-411A which require a special inspection prior to returning an airplane from cargo to passenger service. Based on experience gained under SR-411 and SR-411A, it is believed that intermittent cargo-passenger operations can now be permitted provided the special inspection is made each time the airplane is returned to passenger service.

In consideration of the foregoing, it is proposed to promulgate the following Special Civil Air Regulation:

Notwithstanding the applicable structural provisions of the Civil Air Regulations, any air carrier or foreign air carrier may operate DC-6A, DC-7 series, and L-1049 series airplanes certificated under the provisions of Part 4b, effective before March 13, 1956, for the carriage of cargo only, at increased zero fuel and landing weights, under the following conditions:

(1) The zero fuel weight (maximum weight of the airplane with no disposable fuel and oil) and the structural landing weight may be increased beyond the maximum approved in full compliance with the applicable Civil Air Regulations: *Provided*, That any increase in the zero fuel weight shall not exceed 5 percent and that the increase in the structural landing weight shall not exceed the amount, in pounds, of the increase in zero fuel weight. All other weight limitations established in accordance with the Civil Air Regulations applicable to the type airplane shall apply.

(2) Each airplane shall be inspected in accordance with the special inspection procedures for operations at increased weights established and issued by the manufacturer of the particular type airplane and approved by the Administrator.

(3) Each airplane operated by an air carrier under this regulation shall be operated in accordance with the passenger carrying transport category performance operating limitations prescribed in Part 40, 41, or 42. Operation of airplanes by a foreign air carrier is not permitted under the authority of this regulation unless the country of registry requires the airplanes to be operated in accordance with such performance operating limitations or the equivalent thereof.

(4) The Airplane Flight Manual for each airplane operated under the provisions of this regulation shall be appropriately revised to include the operating limitations and information required for operation with the increased weights.

(5) An airplane operated at increased weights under the provisions of this regulation shall be inspected in accordance with the special inspection procedures for return to passenger service established and issued by the airplane manufacturer and approved by the Administrator, before it is used in passenger service, except as provided for the carriage of persons under Special Civil Air Regulation No. SR-432A.

This regulation is proposed under the authority of sections 313(a), 601, 603, 604, and 610 of the Federal Aviation Act of 1958 (72 Stat. 752, 775, 776, 778, 780; 49 U.S.C. 1354, 1421, 1423, 1424, 1430).



Acting Director,
Flight Standards Service.

Issued in Washington, D.C., on April 19, 1962.